



Practitioner's Docket No.3293.004A

PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Ruggero M. Santilli )  
Application No.: 09/826,183 ) Group N.: 1714  
Filed: 04/04/2001 ) Examiner: C.D.Toomer  
For: NEW CHEMICAL SPECIES OF CLUTERS)

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Horst E. Wilhelm, declare and state:

1. I am a scientific professional who has reviewed the works of Dr.R.M.Santilli as it is related to the principles embodied in the new chemical species of clusters.
2. My curriculum vitae is attached herein.
3. I have read the Official Action mailed February 13, 2006, and the reasons for rejection stated by the Examiner. I note that the Examiner alleges essentially that the chemical species invented by Dr.Santilli is not accepted by the scientific community, as contrary to chemistry as is known to date. In order to provide evidence of acceptability by competent scientists, I present the following theoretical and experimental comments concerning my independent observations of the invention claimed by Dr. Santilli and my understanding of the new species of molecular clusters with novel bonding mechanism named magnecules.
4. *Dr.Santilli's magnecules represent a "new chemical species" in the sense of a novel kind of molecular structure, composed of known atoms which are bonded through magnetic interactions discovered by Santilli [1].* Dr.Santilli's theory of magnecules was conceived around 1998, i.e., only about 8 years ago. Based on our experience in the past century, it is unlikely that a new theory would be accepted by the (i) worldwide scientific community or (ii) by the science establishment of its politically active elite in such a short time. Alone for this reason, the alleged lack of established acceptability (even if it were true) of Dr.Santilli's magnecule theory by the scientific community is premature for rejecting a patent conceived by means of his theory, since the latter is already supported by several successful experiments Dr.Santilli predicted based on his theory [2]. By the time Dr. Santilli's magnecule discovery would become known and accepted by the scientific community worldwide, it would (most likely) already have been rediscovered (plagiarized) and patented by one of the big corporations, which have scientists for scanning the scientific literature for this very purpose. Also for this reason, the requirement for the said established scientific acceptability is unacceptable.
5. The concept of "accepted science" has no reliable implications for science, since an infinite number of experiments would be required to prove the correctness of any theory. All what one

can do with a finite number of experiments is proving a theory to be wrong: the first disagreeing experiment is sufficient to reject a theory as false or at least as incomplete. E.g., the special theory of relativity [1905, which asserts that the physical state of a material body depends on the velocity  $v$  of the observer (measures this state) relative to the body] was accepted already by 1920 by a small commune of theoreticians built up by Max Planck (recommended the lecturing of the STR at the University of Berlin already in 1906!). The STR began to expand worldwide after 1945. Whereas experimental physicists, applied physicists, engineers, and logicians overwhelmingly rejected it to this date as obvious nonsense [3]: when a mouse (or a relativist), moving with a velocity  $v$  (in magnitude close to the speed of light  $c$ ) relative to the universe, observes with her (his) eyes the galaxies, their solar systems and planets, – do these observations indeed change the universe's physical state?

In 1965, Penzias & Wilson (Nobel Prize 1978) demonstrated experimentally that the regions of space of the universe, which can be scanned with present technology, contain a random cosmic microwave radiation of temperature 2.7K, which is (i) anisotropic in our galaxy and (ii) isotropic in an inertial observation frame  $S^*$ , which moves with a velocity  $u$  of magnitude  $3 \times 10^5$  m/s relative to our galaxy [4]. This distinguished reference frame  $S^*$  refutes the STR (based on the false assumption that the orthodox Maxwell equations hold in all inertial frames and a physically preferred frame does not exist [3]) and the Lorentz covariant reformulation of the basic equations (axioms) of physics (which are actually Galilei covariant [3]). However, to this date (2006) the theoretical physics establishment ignored these experiments and continues to accept and protect L-covariant theories (e.g., the American J. of Physics has a written policy for rejecting all theories contrary to the STR & GTR, whereas the AIP has such a policy in unpublished form). *Since acceptance of theories by the science establishment does not and can prove their validity, such acceptance does not represent a valid legal instrument for accepting a patent application. Nor does lack of such acceptance represent a valid instrument for rejecting a patent application.*

6. *The IBR founded by Dr.Santilli has about 150 members (most of them are professors), which are familiar with his very significant contributions to physics, mathematics, and chemistry, including his recent discovery of the magnecules. The number of scientists who have studied Dr. Santilli's publications on magnecules is unknown since there are millions of scientists. However, it is a fact that Dr.Santilli's books have been published by the Springer and Kluwer Publ. Companies, which are well known for their book series on advances in the sciences (subjected to critical, but constructive reviews, – as distinguished from mediocre reviews which tolerate scientific progress only in infinitesimal steps within accepted theories). An other fact is that Dr.Santilli's work on megneules has not been criticized in quotations of the international journal literature (see Science Citation Index, 1989–2006), although he received numerous quotations of his work in the latter period. Thus, there is no published allegation that Dr.Santilli's magnecule theory is physically false or unacceptable. The experiments he proposed and were conducted by him qualitatively, were later independently reconfirmed in the said laboratories. All these experiments support Dr.Santilli's magnecule theory and theoretical explanations and predictions.*

7. Large numbers of patents have been obtained in the past and are still awarded to inventors using no theory, but experimental experience and common sense. E.g., such patents were awarded for the ball-pen and all kinds of hand and motor tools (for machines, vehicles, equipment, etc). After building and presenting a prototype of such an invention which demonstrates its technical usefulness, it is only necessary to prove its originality for patenting it. *Magnecules are microscopic building elements for new technologies. The performed experiments prove the existence of the magnecules. The experimental setups used for the observation of the new magnecule effects correspond to prototypes with known usefulness and known technical applications [1,2].*

8. Based on his megneucle theory, Dr.Santilli proposed experiments for the generation of magnecules in gases, liquids, and solids in external magnetic fields, and their qualitative spectroscopic and other visible identifications (photography) around 1989 [2]. After Dr.Santilli selected and suggested these experiments to TOUPS TECHNOLOGY LICENSING (USA), TEKMAR-DOHRMANN

(USA), GIVAUDAN-ROURE (multinational), other CORPORATIONS, and the DEPARTMENT OF CHEMISTRY OF FIU, the said experiments were independently reconfirmed for gases, liquids, and solids in their laboratories [2].

9. Orthodox theoretical quantum physics and chemistry is based on the linear Schrodinger (without electron spin) and Dirac (with electron spin) equations for local, potential particle interactions only. They have been a failure in explaining (i) the physical properties of many-electron atoms and (ii) the physical structure and bonding mechanisms in ordinary molecules [5]. The first realistic description of such systems has been given by Santilli's hadronic quantum theory for nonlocal, non-potential interactions of the particles through their overlapping wave packets [5]. *For these reasons, the allegation that Santilli's hadronic quantum theory is "contrary" to present [incomplete] quantum chemistry is irrelevant since the latter can not explain the observed magnecules. The magnecules were observed in several experiments after 1989 also by Santilli's collaborators as explained [2]. This observation of magnecules is not "contrary" to experimental chemistry, since the experimental chemists never attempted to observe the magnecules before Santilli (1989). Any and all disagreements between earlier and later theories can not be resolved mathematically but must be decided by comparison with the experimental facts, which rule all natural sciences and their theories. Theories, which disagree with experiments, are not science but nonsense.*

10. In 1986, the Undersigned published a statistical theory of the thermal dissociation-association equilibrium of chains of ferromagnetic, colloidal particles (Fe,Co,Ni) of radius  $a \sim 10^{-6}$  cm in the Earth's magnetic field (used as wide-band EM obscurants for military applications) [6]. By introducing the relevant partition functions (for the quantized energies of the oscillations and rotations of the magnecules), this theory can be extended to magnecules in external magnetic fields at temperatures  $T > 0$ . Inter alia, this theory predicts that a magnecule, with a linear chain arrangement of  $N$  atoms (bonded by the Santilli bonding mechanism  $\times$ ) and a total magnetic moment  $M_N$ , would be stable and observable in an external magnetic field  $B_0$  if  $|M_N \cdot B_0| \gg kT$ , i.e., when the magnecule is aligned with  $B_0$  and its energy in  $B_0$  is large compared to the random thermal energy  $kT$  of the background gas. This condition can be realized for a magnecule with sufficiently large magnetic moment  $M_n$ , e.g., for a magnecule consisting of  $N$  in-line hydrogen atoms:  $H(1) \times H(2) \times H(3) \times \dots H(N-1) \times H(N)$ . When a large number of such magnecules exists at  $T \approx 0$  in an experiment, only a fraction of them will be observed after elevating the temperature to  $0 < kT \leq M_N B_0$ . These theoretical predictions agree with the experiments proposed by Santilli for magnecules in an external magnetic field  $B_0$ , which confirmed the existence of magnecules at temperatures  $0 < kT \leq kT_C$ , where  $T_C = T_C(B_0)$  is the critical temperature at which the random thermal perturbations dissociate the magnecules [2].

SUMMARY. *Dr.Santilli could have obtained several patents for the experiments he proposed, which lead to the said novel effects observed in gases, liquids, and solids. Since he was the first who proposed and explained these physical effects in 1989 through his hadronic theory of magnecules [1,2,5], he should not be denied a patent on the invention of magnecules in the absence and presence of external magnetic fields. High originality of new theories and experiments, which are not based on already accepted knowledge and thinking, should never be misused as an argument for rejecting a patent based on these theories and experiments, even if these experiments and theories are "contrary to the [obsolete] science as is known to date." Rather, these new experiments and their theoretical explanations have to be judged on their own merits.*

*Not the worldwide scientific community, which is large as to the number of scientists and technically mediocre by mathematical statistics, determines the scientific value, usefulness, and acceptability of an invention, - but its underlying experiment and its proven technical application do so.*

Dated: July 12, 2006.

  
Declarant: Horst E. Wilhelm

**RESUME: HORST E. WILHELM**

**BORN:** 2 September 1935, Warnsdorf, CSR/GERMANY.  
US Citizenship: 1968.

**EDUCATION:**

1956: Vor-Diplom, Physics Engineering University, Stuttgart, GERMANY.  
1959: Haupt-Diplom, Physics Engineering University, Munich, GERMANY.  
1962: Dr.rer.nat., Physics Engineering University, Stuttgart, GERMANY.

**PROFESSIONAL EXPERIENCE :**

1963-1965: Research Physicist, Allison Division, General Motors Corp., Indianapolis, IN.  
1965-1968: Assistant Professor, Nuclear Engineering, University of Florida, Gainesville, FL.  
1968-1971: Associate Professor, Mechanical Engineering, Colorado State University, Fort Collins, CO.  
1971-1972: Professor, Mechanical Engineering, Colorado State University, Fort Collins, CO.\*  
1972-1978: Professor, Electrical Engineering, Colorado State University, Fort Collins, CO.\*  
1978-1980: Professor, Engineering Sciences, University of Florida, Gainesville, FL.\*  
1981-1985: Senior Research Physicist, Naval Weapons Center, China Lake, CA\*.  
1985-1989: Visiting Professor, Electrical Engineering, King Fahd University of Petroleum & Minerals, Dhahran, SAUDI ARABIA.  
1990-1994: Research Professor, Materials Sciences, University of Utah, Salt Lake City, UT.  
1995-2006: Research Professor, Institute for Basic Research, Palm Harbor, FL, and Monteroduni, ITALY.

**RESEARCH EXPERIENCE:**

Electromagnetic Theory. Electrodynamics of Conductors. Quantum Electrodynamics, Gas and Plasma Dynamics. Physical Electronics. Kinetic Theory of Plasmas. Statistical Mechanics of Ideal, Nonideal, or Turbulent Systems. Basic Physics (Electrodynamics and Quantum Mechanics as Vacuum Substratum Phenomena). Applied Mathematics (Linear and Nonlinear Boundary-Value Problems with Ordinary, or Mixed, or Moving Boundary Conditions).

**MAJOR RESEARCH CONTRIBUTIONS:**

Compression of Magnetic Energy, Microwave Energy, and Thermal Radiation. Generation of High Energy Electromagnetic Power Pulses. Uranium Isotope Separation in Plasma Centrifuges. Criticality Analysis of High Pressure Fission Plasmas. Exact Selfsimilar Solutions for Diverging and Converging Gas and Plasma Flows. Statistical Theory of Turbulent Gases and Plasmas. Formulation of Generalized, Galilei Covariant Maxwell, Schroedinger, and Dirac Equations for Arbitrary Inertial Frames with Substratum Flow. Prediction of New Vacuum Substratum Effects. Refutation of Lorentz-Covariance and Special Theory of Relativity. General Theory of Covariant Transformations of Wave Equations. Analysis of Physical Effects in Weapon Systems (Classified).

\*) Positions with Tenure.

**REFERENCES:**

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R.M.Santilli, *Foundations of Hadronic Chemistry with Applications to New Clean Energies and Fuels*, Kluwer Academic Publ., Boston-Dordrecht-London (2001).
- [2] R.M.Santilli, Theoretical Predictions and Experimental Verifications of the New Chemical Species of Magnecules, Hadronic J. 21,789-894(1998).
- [3] H.E.Wilhelm, Problematics of Einstein's Relativity Theories, Hadronic J. 19,1-39(1996).
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- [6] H.E.Wilhelm, Dissociation-Association Equilibrium of Magnetic Particle Chains in Homogeneous Magnetic Fields, Phys.Fluids 29,3626-3630(1986).